

[illegible]

(d) repeating said morphing and revising steps until said estimation polyhedron accurately depicts said chamber undergoing estimation;

(b) ~~said revising step further comprises the step of from said at least first and second morphed facets of said selected facet, including additional estimation attributes corresponding to said first and second morphed facets.~~

667630-0298660

1 3. The method as recited in claim 1, further comprising the step of:

2 (a) defining said chamber as a room within a building; and

3 (b) defining said chamber attributes to include a surface area
4 correlating to said plurality of facets of said estimation polyhedron.

5
6 4. The method as recited in claim 3, wherein said defining said chamber
7 attribute step further comprises the steps of:

8 (a) assigning one of said plurality of facets of said estimation
9 polyhedron a floor attribute of said room;

10 (b) assigning each of others of said plurality of facets of said
11 estimation polyhedron adjacent to said facet having said floor attribute a wall
12 attribute; and

13 (c) assigning one of said plurality of facets of said estimation
14 polyhedron adjacent to said ones of said plurality of facets having said wall
15 attribute a ceiling attribute.

16
17 5. The method as recited in claim 1, wherein said selecting a default
18 polyhedron further comprises the step of:

19 (a) defining said default polyhedron to include:

20 i. at least 4 facets each defined by a plurality of vertices
21 shared by others of said at least 4 facets;

22 ii. a surface area for each of said at least 4 facets; and

23 iii. a volume of said default polyhedron as bounded by each
24 of said at least 4 facets.

1 6. A method for graphically estimating attributes of a room, comprising
2 the steps of:

3 (a) selecting a default polyhedron as an estimation polyhedron to
4 approximate said attributes of said room, said estimation polyhedron having
5 a plurality of facets with each comprised of at least one estimation attribute
6 including an area;

7 (b) morphing one of said plurality of facets of said estimation
8 polyhedron to approximate said room undergoing estimation;

9 (c) revising said at least one estimation attribute of said morphed
10 facet and adjacent facets of said estimation polyhedron;

11 (d) repeating said morphing and revising steps until said estimation
12 polyhedron accurately depicts said room undergoing estimation; and

13 (e) listing said estimation attributes of said estimation polyhedron
14 as said attributes of said room.

15
16 7. The method as recited in claim 6, wherein said selecting step further
17 comprises the steps of:

18 (a) assigning one of said plurality of facets of said estimation
19 polyhedron a floor attribute of said room;

20 (b) assigning each of others of said plurality of facets of said
21 estimation polyhedron adjacent to said facet having said floor attribute a wall
22 attribute; and

23 (c) assigning one of said plurality of facets of said estimation
24 polyhedron adjacent to said ones of said plurality of facets having said wall
25 attribute a ceiling attribute.
26

1 8. The method as recited in claim 6, wherein:

2 (a) said morphing step further comprises the step of when
3 additional facets better approximate said chamber undergoing
4 approximation, partitioning said selected facet of said estimation polyhedron
5 into at least a first and second morphed facets to provide an improved
6 estimation of said chamber undergoing estimation; and

7 (b) said revising step further comprises the step of from said at least
8 first and second morphed facets of said selected facet, including additional
9 estimation attributes corresponding to said first and second morphed facets.

10
11 9. The method as recited in claim 6, further comprising the steps of
12 hierarchically grouping additional rooms into levels and grouping a plurality of
13 levels into a structure.

1 10. A graphical method for estimating material requirements for a room
2 within a structure, wherein said room is comprised of a plurality of planes,
3 comprising:

4 (a) displaying a default surface polygon, said surface polygon
5 forming one plane of a plurality of planes of an estimation polyhedron for
6 approximating said room, said plurality of planes each further having an
7 estimation attribute assigned thereto;

8 (b) morphing said default surface polygon into a morphed polygon
9 to approximate a plane of said room undergoing estimation;

10 (c) revising said estimation attribute of said morphed polygon and
11 adjacent ones of said plurality of planes affected by said morphing step;

12 (d) repeating said morphing and revising steps until said estimation
13 polyhedron accurately approximates said room undergoing estimation; and

14 (e) converting said estimation attributes of said estimation
15 polyhedron into said material requirements for said room within said
16 structure.
17
18
19
20
21
22
23
24
25
26

1 11. The method as recited in claim 10, wherein:

2 (a) said morphing step further comprises the step of when
3 additional planes better approximate said room undergoing estimation,
4 partitioning said morphed polygon of said estimation polyhedron into at least
5 a first and second morphed polygons to provide an improved estimation of
6 said room undergoing estimation; and

7 (b) said revising step further comprises the step of from said at least
8 first and second morphed polygons of said selected facet, including
9 additional estimation attributes corresponding to said first and second
10 morphed polygons.

11
12 12. The method as recited in claim 11, wherein said converting said
13 estimation attributes of said estimation polyhedron step comprises the step of:

14 (a) converting said estimation attribute into a quantity of a specific
15 one of said material requirements.

16
17 13. The method as recited in claim 11, further comprising the steps of:

18 (a) redefining another one of said plurality of planes of said
19 estimation polyhedron as said default surface polygon to display, morph and
20 revise estimation attributes associated therewith.

sh
C1

(a) assigning one of said plurality of planes of said estimation polyhedron a floor attribute of said room;

(b) assigning each of others of said plurality of planes of said estimation polyhedron adjacent to said plane having said floor attribute a wall attribute; and

(c) assigning one of said plurality of planes of said estimation polyhedron adjacent to said ones of said plurality of planes having said wall attribute a ceiling attribute.

- 1 15. A computer-readable medium having computer-executable instructions
2 for performing the steps comprising:
- 3 (a) displaying a default surface polygon, said surface polygon
4 forming one plane of a plurality of planes of an estimation polyhedron for
5 approximating said room, said plurality of planes each further having an
6 estimation attribute assigned thereto;
- 7 (b) morphing said default surface polygon into a morphed polygon
8 to approximate a plane of said room undergoing estimation;
- 9 (c) revising said estimation attribute of said morphed polygon and
10 adjacent ones of said plurality of planes affected by said morphing step;
- 11 (d) repeating said morphing and revising steps until said estimation
12 polyhedron accurately approximates said room undergoing estimation; and
- 13 (e) converting said estimation attributes of said estimation
14 polyhedron into said material requirements for said room within said
15 structure.
- 16
17
18
19
20
21
22
23
24
25
26

1 16. The computer-readable medium of claim 15 having further computer-
2 executable instructions for performing the steps of:

3 (a) said morphing step further comprises the step of when
4 additional planes better approximate said room undergoing estimation,
5 partitioning said morphed polygon of said estimation polyhedron into at least
6 a first and second morphed polygons to provide an improved estimation of
7 said room undergoing estimation; and

8 (b) said revising step further comprises the step of from said at least
9 first and second morphed polygons of said selected facet, including
10 additional estimation attributes corresponding to said first and second
11 morphed polygons.

12
13 17. The computer-readable medium of claim 15; wherein said computer-
14 executable instructions for performing the step of converting said estimation
15 attributes of said estimation polyhedron step further comprises computer-executable
16 instructions for performing the step of:

17 (a) converting said estimation attribute into a quantity of a specific
18 one of said material requirements.

19
20 18. The computer-readable medium of claim 15, having further computer-
21 executable instructions for performing the steps of:

22 (a) redefining another one of said plurality of planes of said
23 estimation polyhedron as said default surface polygon to display, morph and
24 revise estimation attributes associated therewith.

067E30" 02238E60

1 19. The computer-readable medium of claim 15, wherein said computer-
2 executable instructions for performing the step of displaying a default surface
3 polygon further comprises computer-executable instructions for performing the step
4 of:

5 (a) assigning one of said plurality of planes of said estimation
6 polyhedron a floor attribute of said room;

7 (b) assigning each of others of said plurality of planes of said
8 estimation polyhedron adjacent to said plane having said floor attribute a
9 wall attribute; and

10 (c) assigning one of said plurality of planes of said estimation
11 polyhedron adjacent to said ones of said plurality of planes having said wall
12 attribute a ceiling attribute.
13

14 20. The computer-readable medium of claim 15, having further computer-
15 executable instructions for performing the step of hierarchically grouping additional
16 rooms into levels and grouping a plurality of levels into a structure.
17
18
19
20
21
22
23
24
25
26